

Eucalyptus ornata (Myrtaceae), a new Silver Mallet from near Kondinin, Western Australia

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Abstract

Crisp, M. D. *Eucalyptus ornata* (Myrtaceae), a new Silver Mallet from near Kondinin, Western Australia. Nuytsia 5(2); 311-315 (1984). A new eucalypt apparently restricted to the region around Kondinin, Western Australia, is described. It is closely related to *Eucalyptus falcata* Turcz., from which it may be distinguished by the prominent ribs on the buds and fruits, and by the shape of the fruits.

Introduction

In January 1979, while searching near Kondinin in the Western Australian wheat-belt for the rare and endangered species, *Daviesia purpurascens* Crisp, a party including myself from the Australian National Botanic Gardens discovered a grove of small silver-barked eucalypt trees with very ornate fruits. Further examination showed these plants to be closely related to *Eucalyptus falcata* but to differ in their conspicuously ornate fruits. At the time of their discovery, these trees bore no mature buds, so I delayed further study of them until such material could be obtained. It was not until September, 1983 that Mrs J. Taylor and Mr P. Ollerenshaw of the Australian National Botanic Gardens were able to obtain mature buds.

The material held under *Eucalyptus falcata* in relevant herbaria (CBG, FRI, NSW, and PERTH) was examined to determine its pattern of variation and its relationship to *E. ornata*. Some additional specimens of *E. ornata* were found among this material, plus an intermediate between *E. ornata* and *E. falcata* in the National Herbarium of New South Wales. The intermediate is discussed in the section on affinity later in this paper. Photographs of the types of *E. falcata*, *E. goniantha* and their synonyms were examined at the Herbarium of the CSIRO Division of Forest Research.

Eucalyptus ornata Crisp, sp. nov. (Figure 1)

Arbor ad 10 m alta, cortice laevi cinereo. Cotyledones bisectae. Plantulae foliis paribus oppositis 10-12 tum alternantibus petiolatis primo lineari-obovatis postea ellipticis. Folia adulta alternantia petiolata angusto-ovata longe acuta falcata. Flores (7)11 in umbellastris axillaribus. Pedunculi et pedicelli longi graciles teretiusculi. Alabastra ovoideo-rostrata costis 7-9 prominentibus. Hypanthium alabastris et fructus costis in prominentias gongyloides ad labrum incrassatis. Stamina pro parte maxima inflexa. Ovula 4-seriata. Semen compresso-ovoideum leviter reticulatum nigrescens.

Typus: 9 km NE of Kondinin, trig point, 32° 27' S, 118° 21' E, 25 Sep. 1983, J. Taylor 2244 & P. Ollerenshaw (holo : CBG 8310890; iso : CBG, K, MEL, NSW, PERTH).

Tree to 10 m tall, with a straight trunk, steeply ascending branches and a high, open crown (Figure 1b); *bark* smooth, grey and white (Figure 1c). *Cotyledons* bisected (Figure 1d). *Seedling leaves* opposite for 10-12 nodes, petiolate, at first linear-obovate, becoming elliptic, obtuse, 12-32 x 2-10 mm (Figure 1d). *Juvenile leaves* alternate, petiolate, ovate



Figure 1. *Eucalyptus ornata* a—Holotype, Taylor 2244 (CBG). b—Habit. c—Bark. d—Seedling, from Crisp 5522 (CBG 8007431). e—Buds, from isotype (CBG). f—Fruits, from Crisp 5522 (CBG).

or elliptic, acute, 35-60 x 15-20 mm, dull, grey-green. *Adult leaves* alternate, spreading to descending, narrow-ovate, mostly curved, long acute, tapered to base, 50-150 x 10-22 mm, glossy, green; petiole 10-20 mm long (Figure 1a). *Unit inflorescence* axillary, solitary, (7) 11-flowered; peduncle decurved, compressed, slender, 12-20 mm long. *Buds* pendulous, ovoid, rostrate, 14-23 x 7-10 mm; hypanthium and operculum prominently 7-9-ribbed; hypanthium with ribs thickened into large knuckle-like protuberances at rim, tapered to pedicel; pedicel slightly angular, slender, 6-15 x 0.5-1 mm (Figure 1e). *Stamens* mostly inflexed in bud; anthers versatile, very broad ovate to square in outline, deeply notched at base. *Ovary* with 3 or 4 locules; ovules in 4 longitudinal rows on the lower part of each placenta. *Fruit* 6-11 x 9-13 mm excluding valves; hypanthium turbinate, tapered to pedicel, ornamented as in bud; operculum scar depressed; staminophore convex; disc collar-like, to 1 mm high; valves 3 or 4, exserted, acicular, 6-10 mm long (Figure 1f). *Seed* ellipsoid, compressed, dorsally rounded, ventrally concave or angular, marginally rounded or acute, c. 2.5 x c. 1.5 x c. 1.25 mm, shallowly reticulate, lustrous, grey-black; hilum ventral.

Additional specimens examined. WESTERN AUSTRALIA: Roe District: 15 miles (24 km) S of Hyden, *J.S. Beard* 3935 (PERTH); trig point 9 km NE of Kondinin, *M.D. Crisp* 5522 (CBG, FRI, NSW, PERTH); *ibid.*, *M.D. Crisp* 6163, *J. Taylor* & *R. Jackson* (AD, CBG, FRI, NSW, PERTH); Kalgarin to Lake Grace, Sep. 1932, *C.A. Gardner* s.n. (PERTH); trig 9 km NE of Kondinin, *K. Hill* 649-50, *L. Johnson*, *D. Blaxell*, *I. Brooker* & *S. Hopper* (NSW); *ibid.*, *J. Taylor* 2243 & *P. Ollerenshaw* (AD, CBG, FRI, MO).

Cultivated: New South Wales, Canowindra, garden of W. Bassett, seed ex *C. Gardner*, W. McReaddie, 21 Oct. 1961 (NSW). Australian Capital Territory, Australian National Botanic Gardens, seedlings from Nursery, seed ex *M.D. Crisp* 5522 (CBG 8007431-2).

Distribution (Figure 2). Western Australia: Roe District, east of Kondinin and south of Hyden. *Eucalyptus ornata* occurs at the inland margin of the distribution of *E. falcata*, which is also mapped in Figure 2.

Habitat. At the type locality, *Eucalyptus ornata* is codominant with *E. gardneri* Maiden (Crisp 5520, CBG 7902272) in woodland with a shrubby understorey dominated by *Allocasuarina acutivalvis* (F. Muell.) L. Johnson. The substrate is a yellow-brown sandy loam with ironstone gravel, derived from laterite. Specimens from other localities carry no additional habitat information.

Conservation status. Apparently endangered, coded 2A (criteria from Leigh et al., 1981). The species is known from only three localities over a range of 75 km. The single grove at the type locality extends a short distance along the verges of a road in otherwise cleared land. The status of the other two occurrences is unknown but both are within a region that is mostly cleared for agriculture.

Affinity. This species has an obvious and immediate relationship to *Eucalyptus falcata*, which has been placed in the informal series *Cneorifoliae* by Pryor & Johnson (1971). *Eucalyptus falcata* is a widespread species whose considerable variation is documented by Gardner (1979) and Chippendale (1973). In areas not far from the coast it is a small mallee but at some inland localities it grows into a smooth-barked tree up to 10 m tall, resembling *E. ornata*. These habit forms of *E. falcata* may include an undescribed taxon (Johnson and Blaxell, personal communication). Despite this variation, *Eucalyptus falcata* is distinguished from *E. ornata* by qualitative characters of fruit shape and bud and fruit ornamentation.

The principal character distinguishing *E. falcata* from *E. ornata* is the nature of the ribbing on the buds and fruits. The hypanthium of *E. falcata* is frequently ribbed both in bud and in fruit but the ribs are usually obscure and are never thickened into prominent knuckle-like projections at the rim, as seen in *E. ornata* (Figure 1e & f). Ribs are rare on the operculum of *E. falcata* and when they do occur, they are narrow, sharp and very slightly raised (e.g. Crisp 6476, CBG). On the type of *E. falcata* (Drummond coll. 111 no. 70, photos

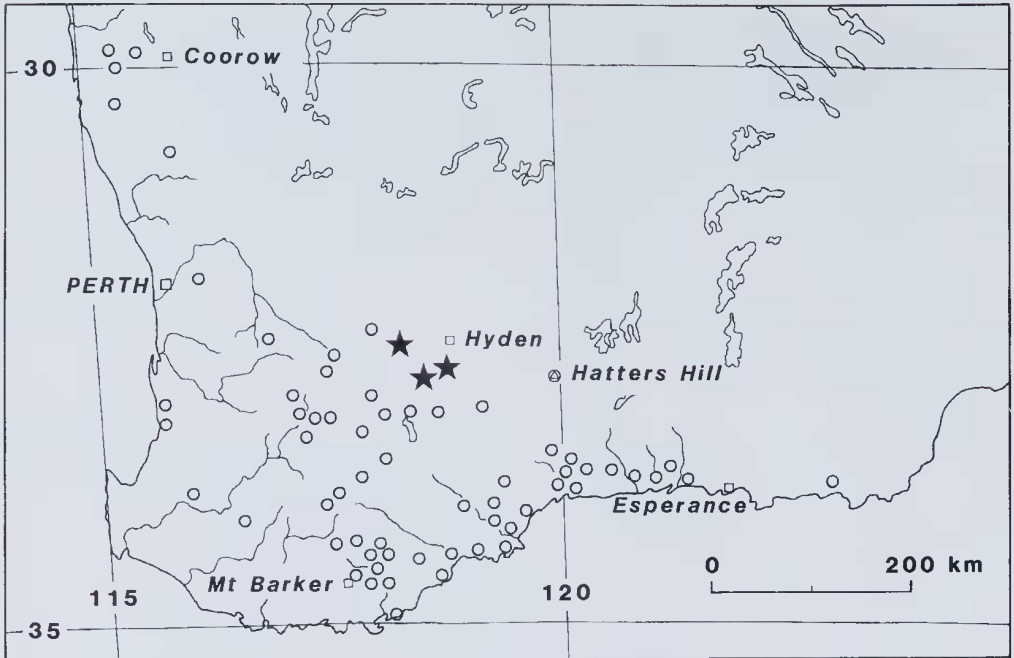


Figure 2. Distribution of *Eucalyptus ornata* (★) and *E. falcata* (○). Map of *E. falcata* incorporates distributional data from the Eucalyst data bank at the CSIRO Division of Forest Research.

seen at FRI), the hypanthium is distinctly ribbed but lacks knuckle-like projections at the rim and the operculum lacks ribs altogether.

The shape of the fruit also distinguishes *E. falcata* from *E. ornata*. In *E. falcata* the fruiting hypanthium is hemispherical or depressed-globular, with a truncate base, whereas in *E. ornata* it is turbinate and tapering at the base (Figure 1f).

Leaves of *E. falcata*, both at seedling and adult stages, are indistinguishable from those of *E. ornata*. Bud size varies greatly in *E. falcata* but seems to be generally smaller than in *E. ornata*, at least in breadth. The largest I have seen are 18 x 7.5 mm (Crisp 4960, CBG). Chippendale (1973) gives a range of 14-16 x c. 6 mm for the species (figures derived by adding dimensions given separately for operculum and hypanthium). The operculum is sometimes short and obtuse, sometimes long and acute as in *E. ornata* (e.g. Maiden 1912, t.68).

Apart from the variation in habit mentioned above, *Eucalyptus falcata* also shows considerable variability in buds and fruits. Maiden (1912) established the var. *ecostata* for a form in which the buds and fruits lacked ribs, by contrast with the type of *E. falcata* (see above). However, this variant appears to be trivial, occurring at the same localities as the ribbed form and merging continuously with it. *Eucalyptus dorrienii* Domin, also a synonym of *E. falcata*, differs only in having a slightly shorter, broader operculum (photos of type seen at FRI).

A specimen at NSW from 25 km NW of Kondinin (Blaxell DFB/W75/18a) appears to be intermediate between *Eucalyptus ornata* and *E. falcata*. The buds are of similar proportions to those of *E. ornata* but the operculum is virtually smooth as in *E. falcata*, with only a hint of ribbing. The hypanthium of the bud is ribbed and tends to form projections at the rim, as in *E. ornata* but less markedly so. In fruit, the ribs become obscure as in *E. falcata*. The fruiting hypanthium is turbinate and tapers at the base like that of *E. ornata*.

Another specimen in NSW from the same locality (Blaxell DFB/W75/18) represents typical *E. falcata* and shows no characters of *E. ornata*. Further investigation of this locality may yield typical trees of *E. ornata*, in which case the presence of the intermediate would indicate hybridisation between *E. falcata* and *E. ornata*.

Eucalyptus goniantha Turcz. is placed next to *E. falcata* in the classification of Pryor & Johnson (1971), and has much in common with *E. ornata*. However, it is readily distinguished from *E. ornata* by coriaceous, more broadly ovate leaves, very robust, flattened peduncles, short, thick pedicels and larger, coarser buds and fruits (photo of type, Drummond coll. III no. 71, seen at FRI). The hypanthium of *E. goniantha* is often coarsely ribbed but lacks the thickened, knuckle-like projections of *E. ornata*. Some forms of *E. goniantha*, notably the subsp. *semiglobosa* Brooker (holotype, Brooker 3613, seen at FRI) have longer, more slender peduncles and pedicels but otherwise differ from *E. ornata* in the characters given above. Other species in the informal *Eucalyptus* series *Cneorifoliae* are more distantly related to *E. ornata*.

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